

Attorney Docket No. P66036US1
Application No.: 09/750,185

Amendments to the claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

Claims 1-236 (canceled).

237 (new). A method to selectively incorporate or encapsulate a proteinaceous target molecule complex, comprising a target molecule and one or more complexing components, into a virus like particle, or physically associate a proteinaceous target molecule complex with a virus like particle by expressing in cells:

- a) a target molecule, said target molecule comprising a coiled-coil sequence fused to a G-protein coupled receptor, or fragments, or derivatives thereof, and
- b) a complexing component, said complexing component comprising a G-protein capable of associating with said target molecule, and
- c) a signal molecule comprising a coiled-coil sequence fused to a retroviral capsid sequence, or a fragment, or a precursor thereof, wherein said retroviral capsid sequence confers on the signal molecule the ability to assemble into virus like particles, wherein said coiled-coil sequence of said target molecule interacts by coiled-coil interaction with said coiled-coil sequence of said signal molecule, so as to incorporate or encapsulate said target molecule complex into said virus like particles.

238 (new). The method according to claim 237 wherein said target molecule and said complexing component form hetero-dimers or hetero-oligomers.

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239 (new). The method according to claim 237 wherein said G-protein coupled receptor is heterologous to the virus like particle.

240 (new). The method according to claim 239 wherein said G-protein coupled receptor is a human endothelin A receptor, or a fragment, or derivative thereof.

241 (new). The method according to claim 239 wherein said G-protein coupled receptor is a human epidermal growth factor receptor, or a fragment, or derivative thereof.

242 (new). The method according to claim 237 wherein said G-protein is the alpha G-protein subunit (Gs-a protein).

243 (new). The method according to claim 237 wherein said G-protein is endogenously expressed by a cell.

244 (new). The method according to claim 237 wherein said retroviral capsid sequence of said signal molecule is encoded by a retroviral gag-gene.

245 (new). The method according to claim 244 wherein said retroviral gag-gene is a gene coding for a gag poly-protein precursor Gag Pr65.

246 (new). The method according to claim 237 wherein said coiled-coil interaction comprises physical forces selected from the group consisting of electrostatic forces, van der Waals forces, stacking interactions, hydrogen bonding and steric fit.

247 (new). The method according to claim 237 wherein said coiled-coil interaction is between a K-coil and an E-coil.

248 (new). The method according to claim 237 wherein said virus like particles are released from said cells into an extracellular environment.

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249 (new). The method according to claim 248 wherein said virus like particles are released from said cells into an extracellular environment by budding through a cellular membrane.

250 (new). A virus like particle obtainable by the method according to claim 237.

251 (new). A method to selectively incorporate or encapsulate a proteinaceous target molecule complex, comprising a target molecule and one or more complexing components, into a virus like particle, or physically associate a proteinaceous target molecule complex with a virus like particle comprising the steps of:

- expressing in cells
 - a) a target molecule, said target molecule comprising a coiled-coil sequence fused to a G-protein coupled receptor, or fragments, or derivatives thereof, and
 - b) a complexing component, said complexing component comprising a G-protein capable of associating with said target molecule, and
 - c) a signal molecule comprising a coiled-coil sequence fused to a retroviral capsid sequence, or a fragment, or a precursor thereof, wherein said retroviral capsid sequence confers on the signal molecule the ability to assemble into virus like particles,
- incorporating or encapsulating said target molecule complex into virus like particles through the interaction of said coiled-coil sequence of said target molecule with said coiled-coil sequence of said signal molecule.

252 (new). A method according to claim 251 comprising the formation of hetero-dimers or hetero-oligomers of said target molecule and said complexing component.

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253 (new). A method according to claim 251 wherein said G-protein coupled receptor is heterologous to the virus like particle.

254 (new). A method according to claim 253 wherein said G-protein coupled receptor is a human endothelin A receptor, or a fragment, or derivative thereof.

255 (new). The method according to claim 253 wherein said G-protein coupled receptor is a human epidermal growth factor receptor, or a fragment, or derivative thereof.

256 (new). The method according to claim 251 wherein said G-protein is the alpha G-protein subunit (G_s-a protein).

257 (new). The method according to claim 251 comprising endogenous expression of said G-protein.

258 (new). The method according to claim 251 comprising encoding said retroviral capsid sequence of said signal molecule by a retroviral gag-gene.

259 (new). The method according to claim 258 comprising encoding a gag poly-protein precursor Gag Pr65 by said retroviral gag-gene.

260 (new). The method according to claim 251 wherein said coiled-coil interaction comprises physical forces selected from the group consisting of electrostatic forces, van der Waals forces, stacking interactions, hydrogen bonding and steric fit.

261 (new). The method according to claim 251 wherein said coiled-coil interaction is between a K-coil and an E-coil.

262 (new). The method according to claim 251 further comprising releasing the virus like particles from said cells into an extracellular environment.

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263 (new). The method according to claim 262 further comprising releasing the virus like particles from said cells into an extracellular environment by a mechanism of budding through a cellular membrane.

264 (new). A virus like particle obtainable by the method according to claim 251.

265 (new). A method to selectively incorporate or encapsulate a proteinaceous target molecule complex, comprising a target molecule and one or more complexing components, into a virus like particle, or physically associate a proteinaceous target molecule complex with a virus like particle comprising the steps of:

- expressing in cells
 - a) a target molecule complex comprising
 - i) a target molecule, said target molecule comprising a coiled-coil sequence fused to a G-protein coupled receptor, or fragments, or derivatives thereof
 - ii) a complexing component, said complexing component comprising a G-protein capable of associating with said target molecule
 - b) a signal molecule comprising a coiled-coil sequence fused to a retroviral capsid sequence, or a fragment, or a precursor thereof, wherein said retroviral capsid sequence confers on the signal molecule the ability to assemble into virus like particles,
- incorporating or encapsulating said target molecule complex into virus like particles through the interaction of said coiled-coil sequence of said target molecule with said coiled-coil sequence of said signal molecule.

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266 (new). A method according to claim 265 comprising the formation of hetero-dimers or hetero-oligomers of said target molecule and said complexing component.

267 (new). A method according to claim 265 wherein said G-protein coupled receptor is heterologous to the virus like particle.

268 (new). A method according to claim 267 wherein said G-protein coupled receptor is a human endothelin A receptor, or a fragment, or derivative thereof.

269 (new). The method according to claim 267 wherein said G-protein coupled receptor is a human epidermal growth factor receptor, or a fragment, or derivative thereof.

270 (new). The method according to claim 265 wherein said G-protein is the alpha G-protein subunit (Gs-a protein).

271 (new). The method according to claim 265 comprising endogenous expression of said G-protein.

272 (new). The method according to claim 265 comprising encoding said retroviral capsid sequence of said signal molecule by a retroviral gag-gene.

273 (new). The method according to claim 272 comprising encoding a gag poly-protein precursor Gag Pr65 by said retroviral gag-gene.

274 (new). The method according to claim 265 wherein said coiled-coil interaction comprises physical forces selected from the group consisting of electrostatic forces, van der Waals forces, stacking interactions, hydrogen bonding and steric fit.

275 (new). The method according to claim 265 wherein said coiled-coil interaction is between a K-coil and an E-coil.

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276 (new). The method according to claim 265 further comprising releasing the virus like particles from said cells into an extracellular environment.

277 (new). The method according to claim 276 further comprising releasing the virus like particles from said cells into an extracellular environment by a mechanism of budding through a cellular membrane.

278 (new). A virus like particle obtainable by the method according to claim 265.